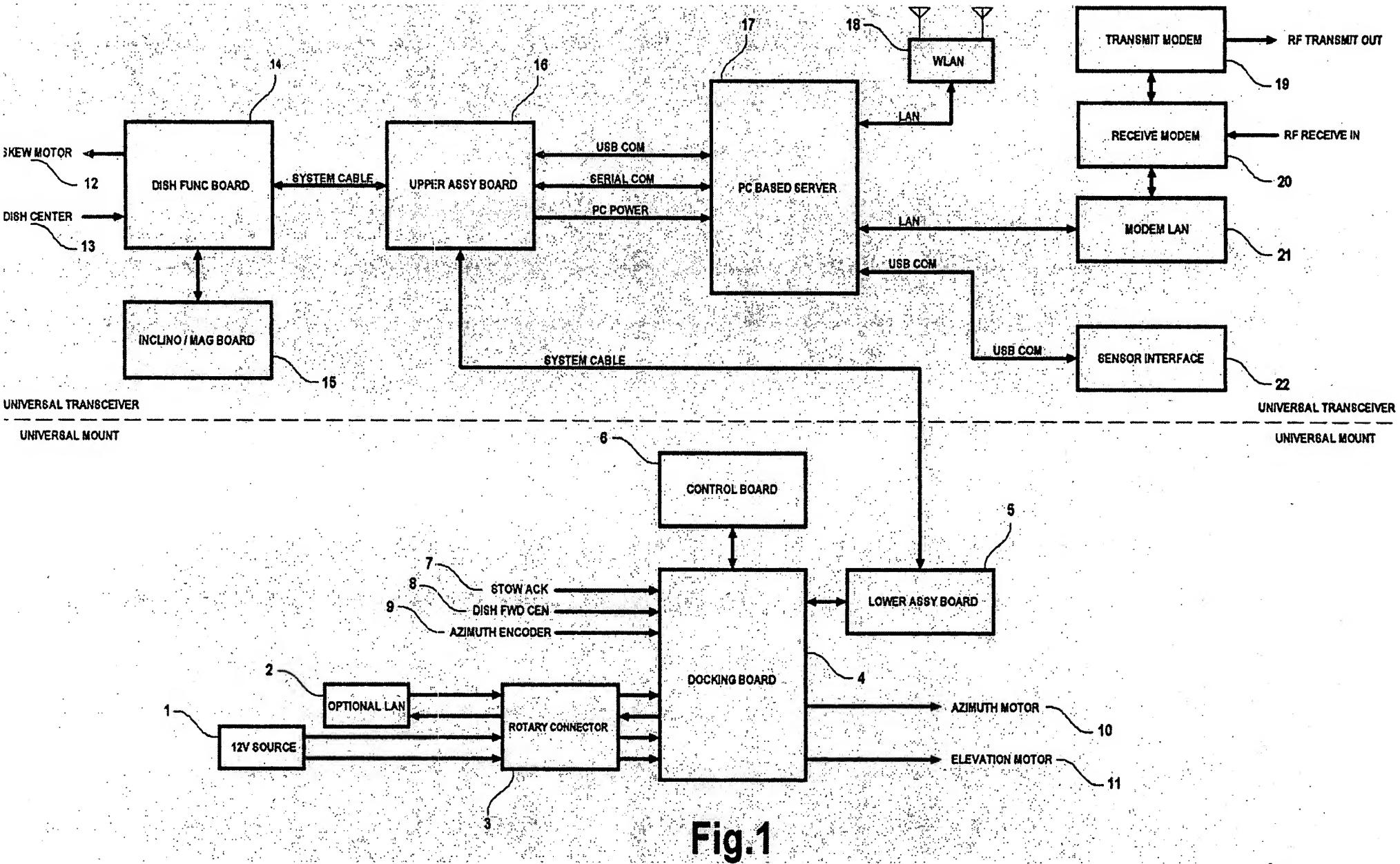

SKEW MOTOR
12
DISH CENTER
13
DISH FUNC BOARD
14
SYSTEM CABLE
UPPER ASSY BOARD
16
USB COM
SERIAL COM
PC POWER
PC BASED SERVER
17
WLAN
18
LAN
TRANSMIT MODEM
RF TRANSMIT OUT
19
RECEIVE MODEM
RF RECEIVE IN
20
MODEM LAN
21
LAN
USB COM
USB COM
SENSOR INTERFACE
22
INCLINO / MAG BOARD
15
SYSTEM CABLE
UNIVERSAL TRANSCEIVER
UNIVERSAL MOUNT
UNIVERSAL TRANSCEIVER
UNIVERSAL MOUNT
6
CONTROL BOARD
5
7
STOW ACK
8
DISH FWD CEN
9
AZIMUTH ENCODER
LOWER ASSY BOARD
DOCKING BOARD
4
2
OPTIONAL LAN
1
12V SOURCE
ROTARY CONNECTOR
3
AZIMUTH MOTOR
10
ELEVATION MOTOR
11

Fig.1

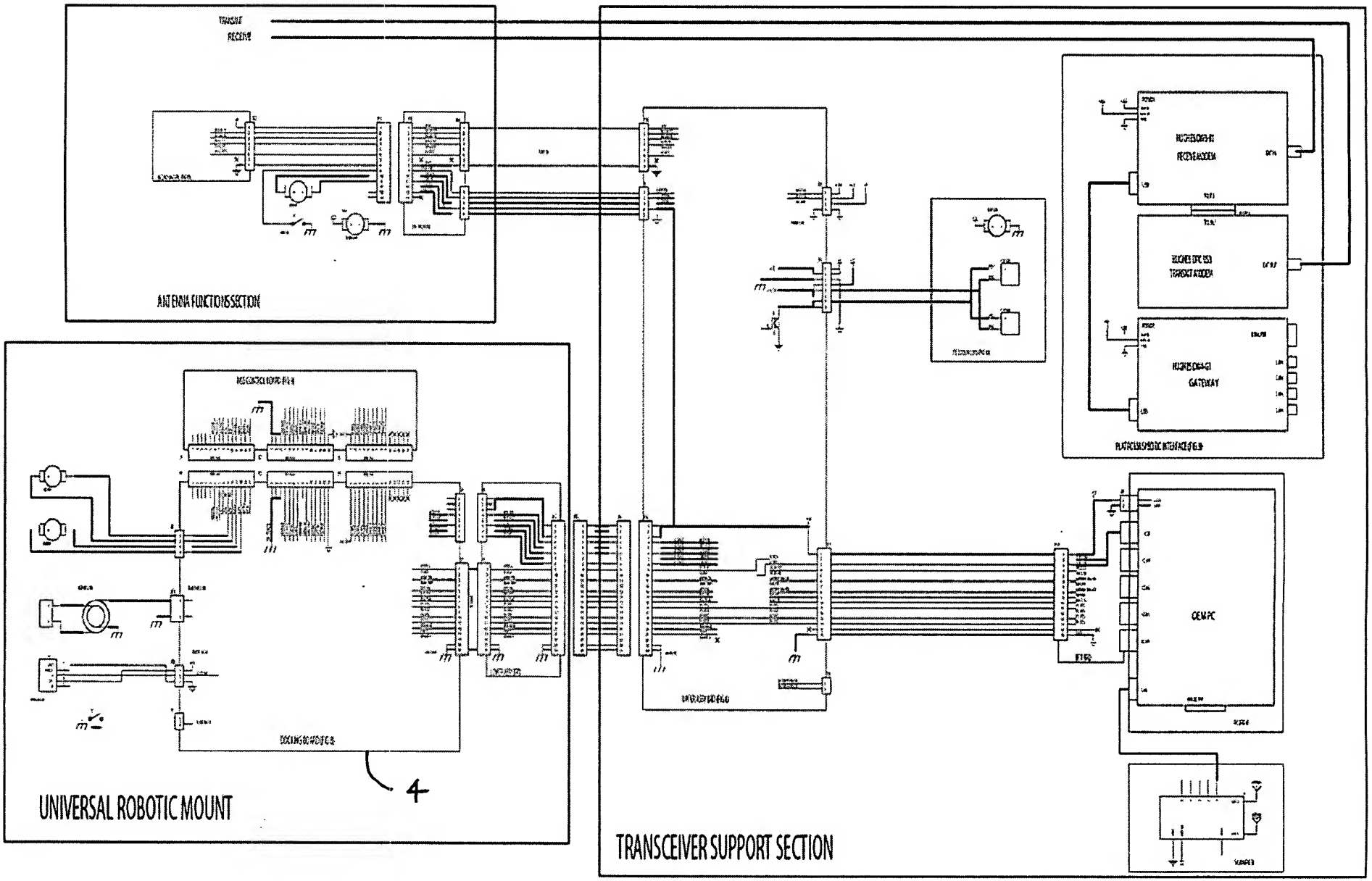

ANTENNA FUNCTION SECTION
UNIVERSAL ROBOTIC MOUNT
4
TRANSCEIVER SUPPORT SECTION
GATEWAY
OEM PC

FIGURE 2

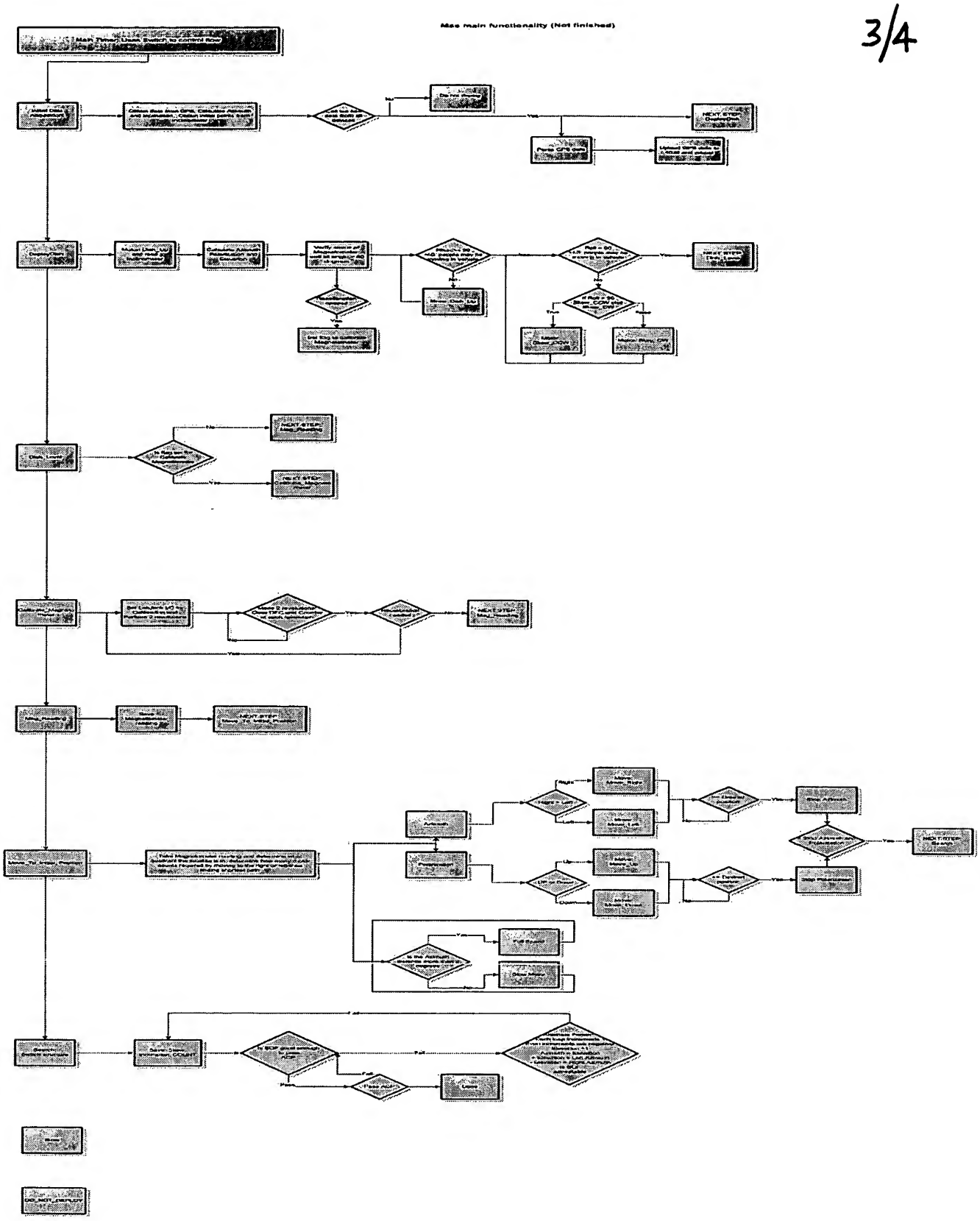
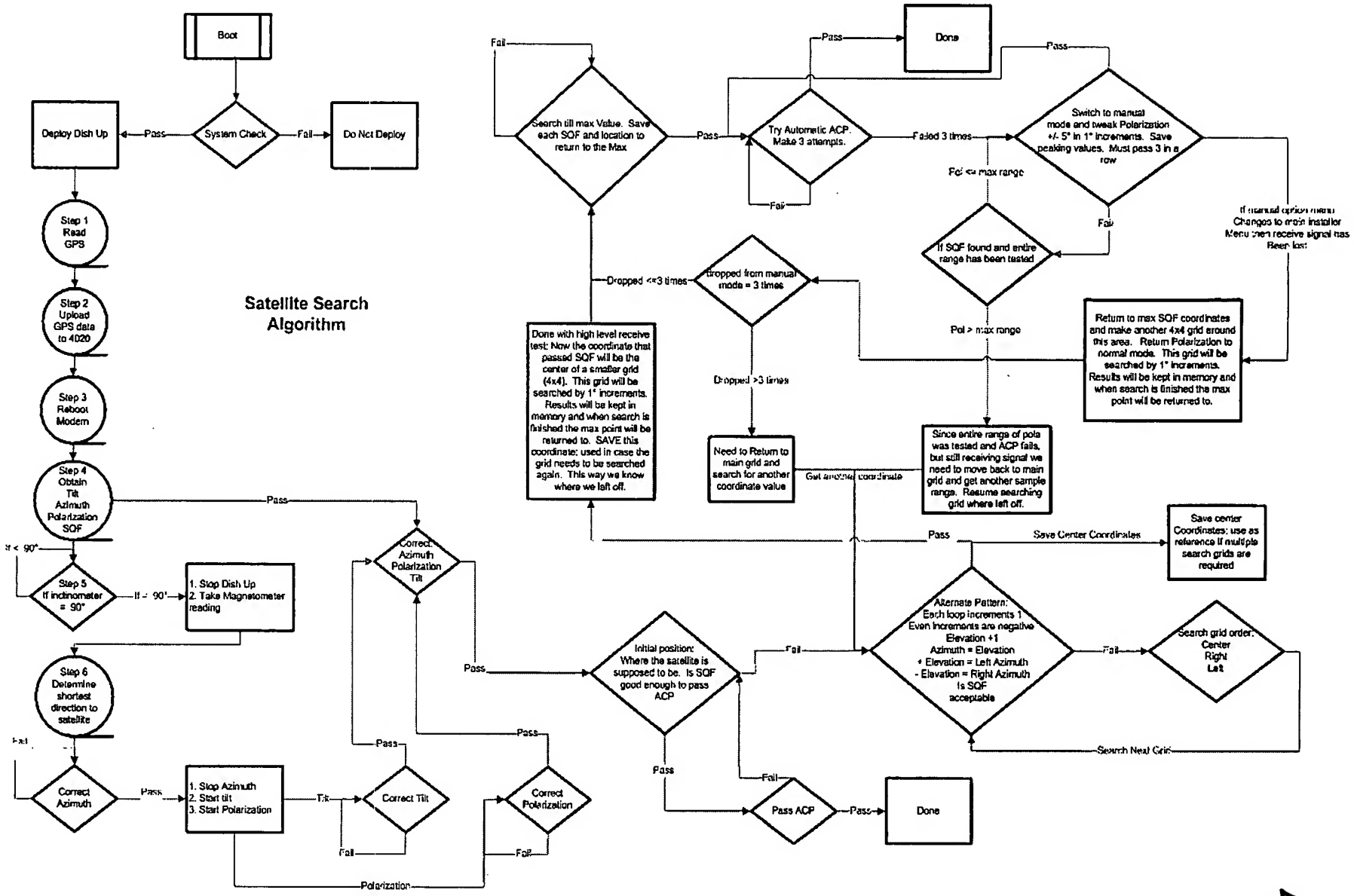


FIGURE 3


Satellite Search Algorithm
Boot
Deploy Dish Up
System Check
Pass
Fail
Do Not Deploy
Step 1 Read GPS
Step 2 Upload GPS data to 4020
Step 3 Reboot Modem
Step 4 Obtain Tilt Azimuth Polarization SOF
Step 5 If inclinometer = 90°
If = 90°
If < 90°
1. Stop Dish Up
2. Take Magnetometer reading
Step 6 Determine shortest direction to satellite
Correct Azimuth
1. Stop Azimuth
2. Start tilt
3. Start Polarization
Correct Tilt
Correct Polarization
Correct Azimuth Polarization Tilt
Initial position: Where the satellite is supposed to be. Is SQF good enough to pass ACP
Search till max Value. Save each SQF and location to return to the Max
Try Automatic ACP. Make 3 attempts.
Failed 3 times
Switch to manual mode and tweak Polarization +/- 5° in 1° increments. Save peaking values. Must pass 3 in a row
Done
Pass ACP
If SQF found and entire range has been tested
Pol <= max range
Pol > max range
Dropped from manual mode = 3 times
Dropped <=3 times
Dropped >3 times
Done with high level receive test: Now the coordinate that passed SQF will be the center of a smaller grid (4x4). This grid will be searched by 1° increments. Results will be kept in memory and when search is finished the max point will be returned to. SAVE this coordinate; used in case the grid needs to be searched again. This way we know where we left off.
Need to Return to main grid and search for another coordinate value
Since entire range of pola was tested and ACP fails, but still receiving signal we need to move back to main grid and get another sample range. Resume searching grid where left off.
Return to max SQF coordinates and make another 4x4 grid around this area. Return Polarization to normal mode. This grid will be searched by 1° increments. Results will be kept in memory and when search is finished the max point will be returned to.
Save Center Coordinates
Save center Coordinates; use as reference if multiple search grids are required
Alternate Pattern: Each loop increments 1 Even increments are negative Elevation +1 Azimuth = Elevation + Elevation = Left Azimuth - Elevation = Right Azimuth Is SQF acceptable
Search grid order: Center Right Left
Search Next Grid
Tilt
Polarization

4/4

FIGURE 4